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10/604,860	08/22/2003	Ming-Yang Chao	MTKP0031USA	1859

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EXAMINER	
GUPTA, PARUL H	

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/604,860	CHAO, MING-YANG	
	Examiner	Art Unit	
	Parul Gupta	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-19 are pending for examination as interpreted by the examiner. No IDS was considered for this application. The arguments filed on 7/26/06 were considered with the following results.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwasa et al., US Patent 5,327,411.

Regarding claim 1, Iwasa et al. teaches a method adapted to an optical storage device for writing data to an optical storage medium (column 5, lines 11-12), the optical storage device having a memory (function performed by counter of element 57 of figure 15) and a pickup ("laser irradiation means" of column 5, lines 8-10), the memory storing a plurality of sets of write strategy parameters (column 17, line 59 to column 18, line 2 explains how the counter of element 57 is used as a memory, the output of which chooses the path of the pulse, or the write strategy parameters to be used from the various choices), the method comprising: providing an RLL modulation waveform to the optical storage device (column 5, lines 1-10 explains the waveform used, which serves the same purpose as the RLL waveform), the RLL modulation waveform including a

previous land ("space") section, a current pit ("mark") section, and a next land section (column 5, lines 30-37 shows how the pits and lands around it are depended upon for the waveform); choosing a set of write strategy parameters from the plurality of sets of write strategy parameters stored in the memory according to waveform lengths of the previous land section, the current pit section, and the next land section (column 5, lines 3-8); generating a write time waveform according to the chosen set of write strategy parameters (column 5, lines 3-8); and driving the pickup ("laser irradiation means") with the write time waveform, so as to write data corresponding to the RLL modulation waveform to the optical storage medium (column 5, lines 8-10).

Regarding claim 14, Iwasa et al. teaches the method of claim 1 being adapted to a CD burner (column 10, line 64 to column 11, line 2 explains how the method is used for recording CD signals).

Regarding claim 15, Iwasa et al. teaches the method of claim 14 being capable of writing data onto a CD-RW (column 10, line 64 to column 11, line 2 explains how the method is used for recording CD signals).

Regarding claim 16, Iwasa teaches the method of claim 1 being adapted to a DVD burner (column 10, line 64 to column 11, line 2 explains how the method is used for recording optical disk data, which includes DVD signals).

Regarding claim 17, Iwasa et al. teaches the method of claim 16 being capable of writing data onto a DVD-R (column 10, line 64 to column 11, line 2 explains how the method is used for recording optical disk data, which includes DVD signals).

Regarding claim 18, Iwasa et al. teaches the method of claim 16 being capable of writing data onto a DVD-RW (column 10, line 64 to column 11, line 2 explains how the method is used for recording optical disk data, which includes DVD signals).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa et al. in view of Ogawa et al., US Patent Publication 2003/0142606.

Iwasa et al. teaches the limitations of claim 1 of a write time waveform generated with the use of the waveform lengths of the current pit section and the surrounding land sections.

Regarding claim 2, Iwasa et al. does not but Ogawa et al. teaches in figure 1B and explains in paragraphs 0049-0053 the waveform utilizing the method wherein the RLL modulation waveform has a base period, the method further comprising: setting the write time waveform to an erase power state (E1, E2, E3, etc.) before the optical storage device writes data; and setting the write time waveform to a bias power state and inserting a plurality of pulses into the write time waveform when the optical storage

device writes data (R1, R2, R3, etc.), and each pulse switching the write time waveform from the bias power state (PB) to a write power state (PP).

Regarding claim 11, Ogawa et al. teaches in figure 8B the method of claim 2 wherein a delay from a trailing edge of any but the first and the last pulses in the write time waveform to a leading edge of the next pulse is equal to a duration twice the base period subtracting a length of the pulse. This is established by the waveform with a duty cycle of 50% as this serves the same purpose as a space equal to twice the period, minus one period of a pulse.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the RLL modulation waveform as taught by Ogawa et al. to write data into the optical storage medium in the system of Iwasa et al. in order to significantly improve the erase characteristic at the rewriting time and the erase power margin by utilizing plural types of erase powers (paragraph 0035 of Ogawa et al.).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa et al. in view of Ogawa et al. as applied to claim 2 above, and further in view of Furumiya et al., US Patent 6,791,926.

Iwasa et al. in view of Ogawa et al. teaches the limitations of claim 2 of a write time waveform with certain specifications generated with the use of the waveform lengths of the current pit section and the surrounding land sections.

Iwasa et al. in view of Ogawa et al. does not but Furumiya et al. teaches in figures 2 and 3 the method wherein the write strategy parameters include a plurality of first parameters (amount given on the left in the middle of each block in figure 3) and a

plurality of second parameters (amount given on the right in the middle of each block in figure 3), each of the first parameter representing a delay from a leading edge of the current pit section to a leading edge of a first pulse of the write time waveform, each of the second parameter representing a delay from a trailing edge of the first pulse of the write time waveform to a leading edge of the next pulse of the first pulse (both parameters are shown in figure 3 and explained in column 7, lines 33-42), the method further comprising: choosing a first parameter from the plurality of first parameters according to waveform lengths of the previous land section and/or the current pit section; and choosing a second parameter from the plurality of second parameters according to waveform lengths of the previous land section and/or the current pit section (column 7, lines 52-54).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the parameters as taught by Furumiya et al. to write data into the optical storage medium in the system of Iwasa et al. in view of Ogawa et al. in order to reduce the effects of variation in the characteristics of a writable optical disc and recording and reproducing apparatus and to try to achieve good recording characteristics even when there is a difference between the optical disc characteristics and standard recording pulse parameters of a writable optical disc, thus reducing the number of read/write operations and shortening the required time (column 2, lines 29-54).

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa et al. in view of Ogawa et al. and Furumiya et al. as applied to claim 3 above, and further in view of Shoji et al., US Patent 6,233,211.

Iwasa et al. in view of Ogawa et al. in view of Furumiya et al. teaches the limitations of claim 3 of a method of choosing parameters of the write strategy.

Regarding claim 4, Iwasa et al. in view of Ogawa et al. in view of Furumiya et al. does not but Shoji et al. teaches the method wherein a trailing edge of the first pulse of the write time waveform is in alignment with a position of a leading edge of the current pit section (shown in figure 5 where the write time waveform is represented by the reproduction signal and the current pit section is represented by the mark) or in alignment with a position twice the base period posterior to a leading edge of the current pit section.

Regarding claim 5, Shoji et al. teaches in figure 20 the method wherein a length of the first pulse of the write time waveform (waveform given on the bottom) is equal to a length of twice the base period subtracting the chosen first parameter (in this case, 0.5T).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method as taught by Shoji et al. to write data into the optical storage medium in the system of Iwasa et al. in view of Ogawa et al. in view of Furumiya et al. in order to provide a data recording medium wherewith optimized recording is possible even with disks of different types, including disk structure and recording film composition (column 3, lines 6-10 of Shoji et al.).

5. Claims 6-8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa et al. in view of Ogawa et al. as applied to claim 2 above, and further in view of Shoji et al.

Iwasa et al. in view of Ogawa et al. teaches the limitations of claim 2 of a write time waveform with certain specifications generated with the use of the waveform lengths of the current pit section and the surrounding land sections.

Regarding claim 6, Iwasa et al. in view of Ogawa et al. does not but Shoji et al. teaches the method wherein the write strategy parameters include a plurality of sets of repeating pulse parameters, each set of repeating pulse parameters having a plurality of repeating pulse parameters, the repeating pulse parameters representing pulse lengths of all but the first and the last pulses (done by the different parameters of the drive pulses of column 5, lines 14-22), a length between leading edges of any two consecutive pulses among all but the first and the last pulses being equal to twice the length of the base period (shown in figure 3), the method further comprising: choosing a set of repeating pulse parameters from the sets of repeating pulse parameters according to a waveform length of the current pit section (column 5, lines 19-28).

Regarding claim 7, Shoji et al. teaches the method of claim 6 wherein the repeating pulse parameters in the same set of repeating pulse parameters (done by the different parameters of the drive pulses of column 5, lines 14-22) are equal to one another (done where marks shown in figure 2 are the same size).

Regarding claim 8, Shoji et al. teaches the method of claim 6 wherein the repeating pulse parameters in the same set of repeating pulse parameters (done by the

different parameters of the drive pulses of column 5, lines 14-22) are not necessarily equal to one another (done where marks shown in figure 2 are not the same size).

Regarding claim 12, Shoji et al. teaches the method wherein waveform lengths of the previous land section, the current pit section, and the next land section are all multiples of the base period (column 4, lines 8-13), ranging from three times the base period to eleven times the base period (column 4, lines 46-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method as taught by Shoji et al. to choose the write strategy parameters in the system of Iwasa et al. in view of Ogawa et al. in order to provide a data recording medium wherewith optimized recording is possible even with disks of different types, including disk structure and recording film composition (column 3, lines 6-10 of Shoji et al.).

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa et al. in view of Ogawa et al. as applied to claim 2 above, and further in view of Shoji et al. and Nakajo, US Patent 6,781,937.

Iwasa et al. in view of Ogawa et al. teaches the limitations of claim 2 of a write time waveform with certain specifications generated with the use of the waveform lengths of the current pit section and the surrounding land sections. Iwasa et al. in view of Ogawa et al. teaches the method comprising: choosing a third parameter from the plurality of third parameters according to waveform lengths of the current pit section and the next land section; choosing a fourth parameter from the plurality of fourth parameters according to the waveform length of the current pit section; and choosing a

fifth parameter from the plurality of fifth parameters according to the waveform lengths of the current pit section and the next land section.

Iwasa et al. in view of Ogawa et al. does not but Shoji et al. teaches in figure 20 the method wherein the write strategy parameters include a plurality of third parameters and a plurality of fourth parameters, each third parameter representing a delay from a position twice the base period prior to a trailing edge of the current pit section to a leading edge of a last pulse of the write time waveform (space from the time interval to TL), each fourth parameter representing a period of the last pulse of the write time pulse (TL).

Iwasa et al. in view of Ogawa et al. does not but Nakajo teaches the method werein the write strategy parameters include a plurality of third parameters, each fifth parameter representing a delay from a position one base period prior to the trailing edge of the current pit section to a position the write time waveform switches back to the erase power state (ΔTb(mt) of figure 7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the parameters as taught by Shoji et al. and Nakajo in the method of choosing the write strategy parameters in the system of Iwasa et al. in view of Ogawa et al. in order to provide a data recording medium wherewith optimized recording is possible even with disks of different types, including disk structure and recording film composition (column 3, lines 6-10 of Shoji et al.) and to which achieve improved quality, such as less jitter and deviation and a lower error rate, of recording signals in high-speed recording (column 3, lines 16-22 of Nakajo).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa et al. in view of Ogawa et al., Shoji et al., and Nakajo as applied to claim 9 above, and further in view of Nobukuni et al., US Patent 6,411,579.

Iwasa et al. in view of Ogawa et al., Shoji et al., and Nakajo teaches the method of choosing certain write strategy parameters.

Iwasa et al. in view of Ogawa et al., and Shoji et al., and Nakajo does not but Nobukuni et al. teaches in figure 11 (a) and 11 (b) the method of claim 10 wherein a delay from a trailing edge of the last pulse of the write time waveform to a position the write time waveform switches back to the erase power state (0.5T) is equal to the chosen fifth parameter (T) plus a duration of one base period (T) subtracting the chosen third parameter (T) subtracting the chosen fourth parameter (0.5T).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the features as taught by Nobukuni et al. in the method of choosing the write strategy parameters in the system of Iwasa et al., Ogawa et al., Shoji et al., and Nakajo in order to perform recording in a satisfactory manner even during a mark length recording using a short clock period suited for high density recording and high speed recording (column 5, lines 57-63 of Nobukuni et al.).

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa et al. in view of Ogawa et al. and Furumiya et al. as applied to claim 3 above, and further in view of Fuji, US Patent 5,537,381.

Iwasa et al. in view of Ogawa et al. and Furumiya et al. teaches the limitations of claim 3 of a method of choosing parameters of the write strategy.

Iwasa et al. in view of Ogawa et al. and Furumiya et al. does not but Fuji et al. teaches in figure 13 the method wherein levels of the erase power state (0), the bias power state (Pb), and the write power state (Pw) are predetermined values, and do not vary with different RLL modulation waveforms (explained in column 14, lines 13-21).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method as taught by Fuji in the system of Iwasa et al., Ogawa et al., and Furumiya et al. in order to set an optimum value to a plurality of variables even when an ambient temperature and recording sensitivity of a recording medium change (column 3, lines 18-23).

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasa et al. as applied to claim 1 above, and further in view of Hayashi, US Patent 5,606,540.

Iwasa et al. teaches the limitations of claim 1 of a write time waveform generated with the use of the waveform lengths of the current pit section and the surrounding land sections.

Iwasa et al. does not but Hayashi teaches the method wherein the RLL modulation waveform is an eight-to-fourteen modulation waveform (column 14, lines 28-39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the method as taught by Hayashi into the system of Iwasa et al. to be compatible with read information corresponding to a recorded signal having a run length equal to or longer than 4T, excluding 3T (column 14, lines 35-39 of Hayashi).

Response to Arguments

10. Applicant's arguments filed on 7/26/06 have been fully considered but they are not persuasive. Responses were made below to the independent claims. All other claims maintain the same response as being dependent on a rejected parent claim.

Regarding claim 1, applicant contends that the counter is not a "memory storing a plurality of sets of write strategy parameters" as the output of the counter does not feed back to the counter. In addition, applicant contends that the write strategy parameters is not chosen based on previous land section, current pit section, and next land section. The examiner disagrees because the given counter stores the lengths of the marks and spaces, which are used to drive the laser in the given write strategy parameters. Thus, although the memory does not hold the actual parameters, the information stored therein serves the same purpose. As for the choice of parameters based on the previous and next space in addition to the land, Iwasa et al. teaches this in the given section. Column 2, lines 30-37 show the dependence of the write strategy on the length of the written pit and the length of the space between the pits, which would be both before and after the pit itself. The cited portion of column 5 explains the implementation based on the statements in column 2. Column 5, lines 38-53 goes on to explain the dependence and reasoning for it in more detail.

Regarding claim 2, applicant contends that the erase power state is set before the device writes data as opposed to after. The examiner disagrees because figure 1b of Ogawa et al. shows that the erase power states are in between the recording portions. Thus, there is an erase portion before the recording portion, yielding the same

results as the applicant. Thus, it would be obvious to combine the teachings of Ogawa and Iwasa to arrive at the limitation as disclosed for claim 2 of the present invention.

Regarding claim 3, applicant contends that Furumiya does not teach the given dely between pulses of the recording pulse and that the delay given is for different waveforms. The applicant also contends that the parameters are defined but not chosen in the given manner. The examiner disagrees because the recording pulse of the reference is equivalent to the write time transform of the applicant. Thus, the delay given between the pulses in the waveform is the same as the delay described by the applicant. The general purpose of the invention teaches assigning certain delays based on the land and pit sections given, which would serve the same purpose as selecting the values from a given set of parameters.

Regarding claim 4, applicant contends that the trailing edge of the first pulse of the write time transform is not in alignment with the leading edge of the current pit section. The examiner disagrees because the images shown in figure 3 can be seen more clearly in figure 11. The trailing edge of the first pulse (1102 and 1103) is more clearly shown to align with the leading edge of the pit (1104). This is the same image as figure 3, only shown more closely.

Regarding claim 5, applicant contends that the length of the firdt pulse of the write time waveform is not equal to a length of twice the base period subtracting the chosen first parameter. The examiner disagrees because as the applicant points out, TF + 1.5T = 2T. Thus, TF is equal to 0.5T, regardless of whether or not it is properly illustrated in the diagram. The drawing is not perfectly to scale, but inspection of the

scale shows that TF + the length of the first pulse is 2T. As the length of the first pulse is already given as 1.5T, TF must equal 0.5T. This means that the first pulse of the waveform has a length (1.5T) equal to twice the base period (2T) subtracting the chosen first parameter (0.5T). Thus it would be obvious to combine the teachings of Shoji with the teachings of Iwasa, Ogawa, and Furumiya to arrive at the disclosed limitations of claim 5.

Regarding claim 6, applicant contends that the length between leading edges of any two consecutive pulses is not definitely given, as the figure has no scale, axis, or frame of reference. The examiner disagrees because the limitation given calls for a duty cycle of 50%. The given figure shows the given duty cycle, as is more clearly explained in figure 23. As column 11, lines 49-55 state, the length of the multiple pulses is 0.5T, making this the base period. Thus, the given consecutive pulses of 0.5T + 0.5T is the same as twice the base period of 0.5T.

Regarding claim 9, applicant contends that there is no choosing of a third, fourth, or fifth parameters according to the waveform lengths of the current pit section and next land section. The examiner disagrees because there is never a specification that the third, fourth, and fifth parameters are different from the first and second ones. Thus, the given parameters may be repeated. Therefore, all parameters are disclosed in the same section.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 9:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PHG
9/11/06

ANDREA WELLINGTON
SUPERVISORY PATENT EXAMINER